

School of Basic Sciences

M.Sc. Chemistry (2 Years)

Course Structure & Credit Distribution (Total Credits: 85)

Course Type	Course Name	L	T	P	C
● SEMESTER I – Foundation Courses					
 DSC	Stereochemistry & Reaction Mechanisms	4	0	2	6
 DSC	Advanced Inorganic Chemistry and Spectroscopy	3	0	2	5
 DSC	Chemical Dynamics and Interface Science	4	0	2	6
 DSC	Advanced Analytical Chemistry: Principles, Techniques & Applications	3	0	1	4
 UC	Computer Applications and AI Integration for Chemistry	1	0	1	2
 UC	Data Analytics, AI & Research Methodology for Physical and Mathematical Sciences	2	0	1	3
Semester I Total		15	0	8	26
● SEMESTER II – Core & Advanced Courses					
 DSC	Organic Spectroscopy	4	0	0	4
 DSC	Reaction Mechanism and Group Theory	3	0	0	3
 DSC	Quantum Chemistry and Molecular Spectroscopy	4	0	2	6
 DSC	Advanced Analytical Separation & Instrumental Techniques	3	0	2	5
 DSC	Biological and Chemical Instrumentation	3	0	2	5
 DSE	Elective I Basket	3	0	0	3
 PBL	Summer Internship	0	0	0	0
Semester II Total		17	0	4	26
● SEMESTER III – Inorganic Chemistry Specialization					
 DSC	Organometallic Chemistry and Applications	4	0	1	5
 DSC	Spectroscopic Techniques in Inorganic Chemistry	4	0	1	5
 DSC	Bio-Inorganic Chemistry	4	0	1	5
 UC	AI-Driven Research, Data Visualization & Professional Scientific Communication	2	0	1	3

 DSE	Elective II Basket	3	0	0	3
Semester III (Inorganic) Total		15	0	3	21
 SEMESTER III – Organic Chemistry Specialization					
 DSC	Photochemistry & Pericyclic Reaction	4	0	1	5
 DSC	Reagents and Heterocyclic Chemistry	4	0	1	5
 DSC	Chemistry of Natural Products and Retrosynthesis	4	0	1	5
 UC	AI-Driven Research, Data Visualization & Professional Scientific Communication	2	0	1	3
 DSE	Elective II Basket	3	0	0	3
Semester III (Organic) Total		15	0	3	21
 SEMESTER III – Physical Chemistry Specialization					
 DSC	Applied Electrochemistry	4	0	1	5
 DSC	Chemical Kinetics and Surface Chemistry	4	0	1	5
 DSC	Molecular Spectroscopy	4	0	1	5
 UC	AI-Driven Research, Data Visualization & Professional Scientific Communication	2	0	1	3
 DSE	Elective II Basket	3	0	0	3
Semester III (Physical) Total		15	0	3	21
 SEMESTER III – Analytical Chemistry Specialization					
 DSC	Electroanalytical Methods	4	0	1	5
 DSC	Quality Control and Quality Assurance	4	0	1	5
 DSC	Advanced Instrumentation Methods	4	0	1	5
 UC	AI-Driven Research, Data Visualization & Professional Scientific Communication	2	0	1	3
 DSE	Elective II Basket	3	0	0	3
Semester III (Analytical) Total		15	0	3	21
 SEMESTER IV – Research & Dissertation					
 PBL	Project	0	0	0	12
Semester IV Total		0	0	0	12
 ELECTIVE I BASKET					

 DSC	Polymer Chemistry	3	0	0	3
 DSC	Industrial Chemistry	3	0	0	3
 DSC	Solid State Chemistry	3	0	0	3
 UC	Environmental Analytical Chemistry	3	0	0	3
 ELECTIVE II BASKET					
 DSC	Bio-organic Chemistry	3	0	0	3
 DSC	Advanced Green Chemistry	3	0	0	3
 DSC	Carbon Materials	3	0	0	3
 DSC	Advance Metallurgical Sciences	3	0	0	3
 UC	Industrial Biochemistry	3	0	0	3
 PROGRAMME TOTAL					
	Overall Credits	62	0	15	85

Legend

 DSC – Discipline Specific Course
  UC – University Core Course
  PBL – Project Based Learning